Remarks

Pending claim 37 stands rejected by the Examiner under 35 U.S.C. §103(a) as being unpatentable over *Sigurjonsson et al* (US 2002/0107829 A1) (hereinafter *Sigurjonsson*) in view of Kobus Barnard and David Forsyth, *Learning the Semantics of Words and Pictures*, IEEE 2001 (hereinafter *Barnard*).

In response to the Office action, Applicants amends claim 37 to further define "content based image retrieval module" as being the content based image retrieval module notoriously well known to those practiced in the art of image analysis circa 2003. Note that the Zhano and Zhou references that Examiner noted in PTO from 892 do discuss content based image retrieval as understood by those practiced in image analysis. As such, the broadest meaning that should be given to Applicants' "content based retrieval module" should be limited to mean exactly and only what practitioners of the art would intend in their normal publications, communications, and conversations.

Applicant has also amended claim 37 to clarify that the image being compared to the stored images does not start off with keyword associations. As such, the non existent keywords can not be used to retrieve similar images or to determine related content. Furthermore, the clarification precludes keyword based image retrieval from being read into the content based image retrieval module or as a factor in determining image similarity.

Claim Rejections Under 35 U.S.C. §103(a)

As Examiner is well aware, "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." (In re Kahn, 441 F. 3d 977, 988)(cited with approval in KSR v. Teleflex in 2007).

Examiner states that claim 37 be obvious for one practiced in the art because *Barnard* and *Sigurjonsson* disclose all the elements of the claimed invention. Applicants disagree because all the elements are not disclosed and further because there is no motivation, other than Applicants' submission, to combine the prior art references.

Requirements for *Prima Facie* Obviousness

The obligation of the Examiner to go forward and produce reasoning and evidence in support of obviousness under 35 U.S.C. §103 is clearly defined at M.P.E.P. §2142:

> The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

M.P.E.P. §2143 sets out the three basic criteria that a patent examiner must satisfy to establish a *prima facie* case of obviousness necessary for establishing a rejection to a claim under 35 U.S.C. §103:

1. some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;

2. a reasonable expectation of success; and

3. the teaching or suggestion of all the claim limitations by the prior art reference (or references when combined).

It follows that in the absence of such a *prima facie* showing of obviousness under 35 U.S.C. §103 by the examiner (assuming there are no objections or other grounds for rejection), an Applicant is entitled to grant of a patent. Thus, in order to support an obviousness rejection under 35 U.S.C. §103, the Examiner is obliged to produce evidence compelling a conclusion that each of the three aforementioned basic criteria has been met.

Sigurjonsson teaches a hierarchical tree with keywords at the nodes and associating images with the keywords. The position of nodes within the tree creates keyword-image associations because parent nodes are automatically inherit child node associations. For example, "John" is a child node of "family". As such, the keyword "family" is associated by the tree hierarchy with every image that is associated with "John". The converse is not true because every "family" image need not contain "John".

Sigurjonsson never teaches a content based image retrieval module. Examiner incorrectly asserts that *Sigurjonsson* teaches it (p. 3, para 37). While para 37 is very difficult read, it merely uses the terms "content" and "content records". There is no hint or suggestion that these terms refer to image contents and more specifically they do not refer to the established meaning of content based image retrieval. As such, "similar images" are

never produced because *Sigurjonsson* never teaches a means for finding a similar image.

Examiner asserts that *Sigurjonsson* (p. 4, para 42-47) teaches "producing at least two primary keywords based on the keywords associated with the similar images". The referenced paragraphs actually discuss the operation of a "searcher" algorithm that seeks out images associated with user specified tags. The searcher can traverse the tree such that a "family" keyword finds "John" images even when "John" is not a specified keyword. As such, two primary keywords are never produced.

Examiner asserts that *Sigurjonsson* teaches determining two primary association with the primary keywords. Claim 37 does not contain this limitation. In general, Examiner uses the term "association" as a replacement for the word "likelihood". The reason for the replacement is that Examiner seeks to present claim 37 without its mathematically rigorous elements and to then present another teaching that does present those elements. The assertion then is that a combination of the teachings encompasses claim 37. Applicants assert that the sum of the teachings does not yield claim 37 because showing that keyword associations exist and that mathematical statistics exist in no way suggests how one could be applied to the other.

Examiner assets that *Sigurjonsson* teaches "producing secondary associations that identify finer scale key words…". This is untrue because *Sigurjonsson*'s hierarchy only teaches coarser keywords. "John" implies "Family" but not vice versa. Furthermore, claim 37 does not contain this limitation.

Examiner asserts that *Sigurjonsson* (p. 4, paras 48-50) teaches "presenting the primary keywords, finer scale keywords, and a new keyword selection to a use ... ". In reality, *Sigurjonsson* teaches editing the tree hierarchy, and propagating those changes to the image tags. It is a completely different context from Applicants' submission that claims tagging an image and updating keyword statistics which is far different from editing a tree data structure.

After rephrasing the claim in *Sigurjonsson's* terms, examiner introduces *Barnard* to show that statistical analysis has been applied to keywords and to images.

Examiner asserts that *Barnard* (p. 412, col 2) teaches "wherein a multitude of keyword statistics are stored in a database statistics module, wherein the keyword statistics indicate a probability that one of the keywords is associated with one of the stored images whenever another one of the keywords is associated with the same stored image". *Barnard* actually teaches that calculating the probability that a particular image produces a particular query. This is a different statistic and a different use of that statstic.

Examiner assets that *Barnard* p. 413 teaches "likelihood of keywords". Examiner is correct, but "likelihood of keywords" is a rather broad. On p. 413 *Barnard* teaches the likelihood of a keyword given the existence of an observed segment. Applicant teaches the likelihood of keywords occurring when other keywords also occur. It is a great leap from *Barnard's* likelihoods to Applicants' likelihoods and thence to application with *Sigurjonsson's* hierarchical trees.

Examiner asserts that *Barnard* teaches (p. 414, col 2) updating the keyword statistics. *Barnard* actually teaches culling the keyword set of keywords that don't occur or that occur so often that they do not convey information. Recall that Applicants' term "keyword statistics" is specifically limited "wherein the keyword statistics indicate a probability that one of the keywords is associated with one of the stored images whenever another one of the keywords is associated with the same stored image". The prior art teaches neither the right statistic nor a database containing that statistic.

Note that the referenced prior art does not teach all the elements of Applicants' invention.

There must also be a teaching, suggestion, or at least a reason to combine the prior art teachings. There is no reason to add *Sigurjonsson* into *Barnard* because a keyword hierarchy would impose an unnecessary limitation on *Barnard*. *Barnard* already stores keywords in a more general way that is more useful for *Barnard's* analysis.

Similarly, there is no reason to pull *Barnard* into *Sigurjonsson*. *Sigurjonsson* teaches a storing keywords in a convenient way and associating them with images. Statistics aren't needed. Heading up the hierarchy, the probability is always unity. Heading down the hierarchy, the manner of using the probabilities is uncertain. What would the statistics be used for?

Finally, there must be a probability of success. The probability of obtaining something useful from the combination of *Barnard* and *Sigurjonsson* is uncertain. What is certain is that the combination of the two prior art

references would not be Applicants' invention.

Conclusion

In view of the foregoing remarks, the Applicants submit that Claim 37 is patentably distinct over the references and are in allowable form. Accordingly, the Applicants earnestly solicit the favorable consideration of the application, and respectfully request that it be passed to issue in its present condition.

Should the Examiner discern any remaining impediment to the prompt allowance of the aforementioned claims that might be resolved or overcome with the aid a telephone conference, examiner is cordially invited to call the undersigned at the telephone number set out below.

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